



ATLANTA

**Traveler
Information
Showcase**

1996

Fact Sheets

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The Atlanta Traveler Information Showcase

Information Bureau

Walcoff & Associates, Inc.
12015 Lee Jackson Highway, Suite 500
Fairfax, VA 22033

David Williams
Battelle
Deputy Project Manager
Phone: (404) 347-0290
Fax: (404) 347-2196

Nels Ericson
Communications Manager
Phone: (703) 267-3695
E-mail:
nericson@walcoff.com

What Is the Traveler Information Showcase?

The Atlanta Traveler Information Showcase is a demonstration of what traveling in metropolitan areas is going to be like as intelligent transportation infrastructures continue to be built. Initially designed to run for four months (June 1 to September 30), the Showcase run has been extended for an additional five months until the end of February 1997.

The Showcase provides the public with up-to-the-minute traffic information continually gathered through a variety of information technologies. Commuters and other travelers can then learn about accidents, vehicle breakdowns, road maintenance and other incidents so they can figure out alternate routes to get to where they're going instead of ending up stuck in the middle of a traffic jam.

What Is ITS?

Intelligent Transportation Systems (ITS) are the application of telecommunications, information and computer technologies to the needs and problems of the US. highway, rail and transit infrastructure. Using sensors, computerized traffic control systems and electronic navigation, these technologies, many of which were developed for aviation, the space program and the defense program, are now being deployed to make the movement of people and goods easier, safer and less polluting.

About The Fact Sheets

These fact sheets provide a thumbnail sketch of each of the component systems that make up the Traveler Information Showcase. The fact sheets offer a historical overview of the Showcase; list the services and information available via each of the five Showcase technologies plus the Georgia DOT's interactive kiosks; briefly describe how the technologies work, how travelers use the technologies and how the information is presented to the user.



Fact Sheet #1

1. Atlanta was chosen to host the Traveler Information Showcase for a number of reasons that include:

- From 1982 to 1992, congestion in the metropolitan area grew by 29 percent.
- The city's population grew by 36 percent from 2.4 million to 3.3 million from 1983 to 1993.
- In the most recent Texas Transportation Institute congestion survey (1992), Atlanta was rated tenth most congested out of the 50 largest cities in the United States.
- During the summer of 1996, 2.5 million and possibly more athletes, coaches, spectators and other visitors came to Atlanta for the Olympic and Paralympic Games.
- In April 1996, the Georgia Department of Transportation opened its \$11 million Transportation Management Center in Atlanta, part of the \$140 million Advanced Transportation Management System that collects real-time traffic information that is then distributed to travelers.

2. The genesis of the Showcase:

- Discussions were held at the Federal Highway Administration's Joint Intelligent Transportation Systems Program Office in early 1994 on how to expedite the deployment of ITS technology;
- Transportation Secretary Federico Pena announced the Showcase at the Fourth ITS America Annual Meeting held in Atlanta on April 18, 1994;
- The U.S. Department of Transportation's Joint Program Office sent out a Request for Information in November 1994 to potential private sector participants. From the responses, the core participating companies were selected.

3. How is data collected for the Showcase?

- More than 350 full pan, zoom and tilt closed circuit video cameras and fixed video cameras equipped with image processors known as Autosopes are deployed throughout the metropolitan area.
- Metro Traffic has spotters in aircraft, helicopters, mobile units and slow scan cameras. Information is updated every 15 minutes during rush hour and every 30 minutes during the rest of the day.
- Radar sites throughout the region measure traffic density and speed.
- Georgia DOT has mobile spotters on the roads.
- Along I-75 and I-85 within the I-285 beltway surrounding Atlanta, 63 miles of fiber optic cable has been laid. Another 125 miles of fiber optic cable is being laid along major arterials in the metropolitan area. The fiber optic cable will link all of the components of

the Transportation Management System and the Showcase with the Transportation Management Center.

4. What will be the lasting legacy of the Showcase?

- Atlanta and Georgia will inherit all of the software, hardware, communications networks, surveillance devices, the Internet web site and the cable TV channel.
- Public outreach supporting the project will introduce the public to the benefits to be derived from ITS.
- The Showcase will serve as a template to other regions, states and localities on how to create a multi-jurisdictional public/private partnership.
- Engineers and other technicians who worked to bring the Showcase on-line by the June 1 start-up have in the process confronted, analyzed and overcome many of the same problems and situations that other jurisdictions looking to create similar complex systems will face and will thereby serve as a model for other locations.

Fact Sheet #2

Personal Communications Devices [hand-held computers]

During the initial four months (June 1 through September 30) of the Showcase, several hundred volunteers will receive route, traffic, transit and other travel information using Personal Communications Devices or hand-held computers equipped with wireless modems. The Showcase demonstration has been extended an additional five months until the end of February 1997. A limited number of both devices will be available for usage by targeted audiences.

1. **Two devices/platforms are being used during the demonstration:**

- **Fastline** has integrated its software with the Motorola Envoy and a wireless data network. The pen-based Envoy runs on General Magic's Magic Cap graphic operating system. Users touch icons on the Envoy screen with a stylus to access a map of Atlanta showing real-time traffic information, electronic yellow pages and other services. **Navigation Technologies** supplies the map data base and electronic yellow page data base. **Official Airline Guide** provides wide area travel information. **Embassy Suites** distributed the devices. **Totally Wireless** provided the Envoy's and Ardis air time agreements;
- **Etak's** map data base and electronic yellow pages software is integrated with **Hewlett-Packard's** HP200LX Palmtop computer and **SkyTel's** two-way paging network. The HP200LX runs on MS-DOS. The Windows-like operating system guides users step-by-step through the pull-down menus and icons to access real-time traffic information, electronic yellow pages and other services. **SanDisk** provides flash disks for data storage. **Official Airline Guide** provides wide area travel information, and **Metro Networks** supplies real-time traffic information. **Marriott International**, the **Sheraton Colony Square** and **Embassy Suites** distributed the devices to their guests.

2. **How do users access the travel information?**

Users of both platforms enter their query for specific information into their hand-held device, which transmits the request to the fixed end server located in the Transportation Management Center in Atlanta. From its own data sources and the Georgia Department of Transportation's Advanced Transportation Management System computers, the fixed end server retrieves the requested information and transmits it via dedicated phone lines to wireless data network or paging facilities where it is then broadcast back to the user.

3. What services are available on both devices/platforms?

- Traffic congestion and incident location and type, sites of scheduled road maintenance and construction activities (including project start and end dates and times), travel speeds and parking availability by locations;
- MARTA transit bus and train frequency, fares and routes;
- Schedules and locations for sporting and other events;
- Wide area bus, train and airline route and fare information;
- Route guidance for automobiles;
- Electronic yellow pages detailing information and locations of restaurants, hotels, theaters, museums, historical sites, shopping centers, automated teller machines, gas stations, hospitals, police and fire stations, emergency medical services and taxis.

4. What is the coverage area?

All services are available throughout the greater Atlanta metropolitan area. Many of the functions reach throughout Georgia to cities like Athens, Savannah and Columbus that hosted Olympic events. During the 16 weeks of the Showcase, the two systems operated seven-days-a-week, 24-hours-a-day.

5. Is there support during the Showcase?

A hands-on demonstration is given to each volunteer when he or she picks up his/her hand-held device. Users also receive printed instructional material, and customer service centers equipped with “help” desks for both devices have been set up in Atlanta.

Fact Sheet #3

In-Vehicle Navigation Devices

During the Showcase, rental cars and local commercial fleet vehicles have been equipped with in-vehicle navigation devices.

1. The team members for this demonstration are:

- **Siemens** provides the in-vehicle computer and the visual display unit. The computer unit, which includes the main processor, mass storage device, inertial gyroscope and dead reckoning device, is mounted in the trunk of each Showcase vehicle;
- **Navigation Technologies** supplies the digitized map data base and an electronic yellow pages and point of interest data base;
- **DCI** delivers real-time traffic information to the vehicles via FM subcarrier broadcast. DCI also provides the radio receiver and antenna that will allow the vehicle to receive the FM subcarrier broadcast.
- **Oldsmobile** provides automobiles equipped with the in-vehicle navigation systems.
- **BMW** provides automobiles equipped with the in-vehicle navigation systems.
- **Zexel** provides software.

2. How do users receive the traffic information?

The Showcase fixed end server receives a constant stream of real-time messages on traffic congestion, incidents, planned and unplanned road maintenance, planned events and parking lot capacity from the Georgia Department of Transportation's Advanced Transportation Management System data base and network. This information is sent to DCI where it is formatted and transmitted to FM stations in the Atlanta metropolitan area. The information is transmitted via FM subcarrier technology to the vehicles equipped with the in-vehicle devices.

3. How do drivers use the traffic information?

To use the system, the driver enters his/her destination into the visual display unit mounted on the dashboard. Because the vehicle's origin is determined by an on-board satellite-based Global Positioning System, the system automatically calculates the route to the chosen destination. The driver can also stipulate that certain conditions such as "maximize freeway use," or "shortest time travel" be factored into the system's computation of the route. The system allows the driver to choose between screens showing turn-by-turn route guidance or a map display of the area. On the turn-by-turn screen, an arrow points left or right at the next turn and counts down the distance to that intersection. An audio command also alerts the driver to an imminent change of direction. On the map screen, a triangle representing the vehicle moves along the programmed

route, which is in brightly colored overlay. Icons show locations in the coverage area where there are incidents or indicating traffic speed and parking lot capacity. A red "x" indicates that a road is closed.

4. In what types of vehicles are the navigation devices mounted?

The Hertz Corporation has equipped 20 of its rental cars with the in-vehicle devices. Oldsmobile has outfitted 30 vehicles with the devices. BMW has provided the Showcase with five vehicles. The in-vehicle device has been placed in some private company fleets and Federal Highway Administration automobiles as well. From October 1 through February 28, both Oldsmobile and BMW are providing smaller fleets of automobiles to the Showcase. The Siemens system will be made available for installation in the fleet vehicles of a broader cross-section of the Atlanta business community.

5. Other information:

- Information transmitted to the in-vehicle device is updated every 90 seconds, depending on the volume of data being transmitted;
- DCI has agreements with five local FM stations that give the system coverage in a roughly 1 00-mile radius around Atlanta;
- A hot-line has been set up to provide user support.

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Fact Sheet #4

Cable Television

During the Showcase, cable TV stations in and around Atlanta set up and broadcast channels dedicated to providing up-to-the-minute traffic information.

1. The team members who provide the automated cable television subsystem are:

- **Etak** provides the map database and the system integration;
- **Georgia Public Television (GPTV)** distributes the traffic information programming to cable systems throughout the state via a digital satellite uplink.

2. What type of information is available to viewers?

Maps with icons showing incident locations and color coded segments that indicate current traffic speeds, live surveillance video feeds from cameras placed along Interstate highways and major arterials throughout the metropolitan area and traffic advisory bulletin boards form the backbone of the visual presentation. During peak morning and evening rush hours, a Metro Networks staff member is in a production room in the Georgia Department of Transportation's newly constructed Transportation Management Center to narrate over the live broadcast. This person is able to manually direct the system to pause on the video shot of a particular incident for an extended report.

3. How is the traffic information programming developed?

The Showcase fixed end server receives a stream of information from the Georgia DOT's Advanced Transportation Management System's video surveillance cameras, radar detectors and other sensors. The information is processed in the Showcase fixed end server for distribution to the cable TV programming system data server. Once the information has been processed, it is distributed to a multi-media computer that automatically calls up pre-generated broadcast quality maps and pairs them with live traffic video surveillance feeds. This final presentation is converted to a broadcast signal and transmitted to the Georgia Public Television's satellite transponder over a fiber optic line for distribution to cable companies throughout the metropolitan area.

4. When and where is the traffic information be available?

The cable systems in the City of Atlanta, DeKalb, Gwinnett and Cobb counties carry the real-time Georgia Traveler Information Television programming. The Atlanta system makes the information available to its 250,000 subscribers 24-hours-a-day, and the other systems carry Showcase programming during morning and evening rush hours to their combined 350,000 subscribers. Most of the cable companies offer the traffic information programming over their government access channels. The cable programming may be kept as one of the long-term legacies of the Showcase after the project is completed. In

the Showcase's extended run from October 1 to February 28, the real-time traffic information will be transmitted via fiber optic cable to the different cable systems rather than by satellite uplink.

5. What does the viewer see when he/she tunes into the cable programming?

Following an opening segment, viewers see an overview map of Atlanta with color-coded highway segments that indicate the current speed at which traffic is moving. A second overview map uses icons to place incident locations. A pre-recorded message tells viewers what the color coding means and to stay tuned for more detailed information. The system reports individual incidents and provides a detailed incident location map as well as textual descriptions. Live video (if available) feeds matching the incident and narration that describes the nature of the incident follow the incident map. A commercial break provided by the local cable TV station follows the incident report. A scrolling text bulletin board provides special traffic and transit advisories.



Fact Sheet # 5

Interactive Television

During the initial four-month Showcase run, guests in 285 rooms at the Crowne Plaza Hotel, Ravinia were able to request up-to-the-minute Atlanta metropolitan area traffic and public transportation information, turn-by-turn route guidance and electronic yellow pages information using the television set in their rooms. Once the Showcase concluded its June 1 through September 30 run, this platform was transferred to a 300-unit residential condominium complex in Atlanta.

1. **The Showcase team that provides the interactive television subsystem is:**
 - **IT Network, a Source Media company**, which provides the interactive computer system with the set top boxes and the remote control end user units.
 - **Etak**, which supplies the digitized map data base and a data server at the Transportation Management Center, which distributes real-time traffic information to the hotel interactive television system.
 - **The Crowne Plaza Hotel, Ravinia**, which hosted the demonstration.
2. **How does the system work?**

Guests use the remote control unit in their rooms to request information. Upon each television in the interactive television demonstration sits a set top box that is linked through the room's telephone line to a head-end computer located in the hotel. This computer is linked with the Etak data server in the Georgia DOT's Transportation Management Center (TMC) through a dedicated telephone line. The Etak computer receives a constant stream of traffic information from the Showcase fixed end server, which is also situated in the TMC, processes the data and then distributes it to the hotel computer. The set top box receives the guest's request from a remote control for information and relays the message to the hotel head end computer, which processes the inquiry and returns a multi-media response (maps, color slides, voice) back for display on the television set.
3. **How do the guests use the interactive system?**

Using the room's remote control unit, the guest signs onto the interactive channel. Choosing from a list of programming options from a graphical menu, the user pushes the number on his/her remote control unit that corresponds with the desired service. The system is developed in such a way that no user instructions are actually needed to determine how to navigate the system once the user is signed on.

4. What interactive services are available?

The interactive programming menu is:

1. Traffic incidents;
2. Highway speed;
3. Public transportation;
4. Special events;
5. Area attractions;
6. Restaurants;
7. Hotel services;
8. Weather;
9. Yellow pages;
10. Tutorial.

5. How is the real-time traffic information presented to the viewer?

By selecting “traffic incidents” on-screen, the viewer sees an overview map of Atlanta that is divided into nine zones. Incident locations are marked on the map by icons; highway segments are color-coded to indicate current traffic speed. The viewer can use the remote control unit to specify a particular zone or corridor of interest. Incident icons are numbered, which allows the viewer to request a brief description of the incident printed as text along the bottom of the screen. By selecting “highway speed,” the viewer sees an overview map of Atlanta with color segments and dots indicating current travel speeds.

6. What other information is available?

Clicking on the Public Transportation tile, the guest can request MARTA and Cobb Community Transit bus and train operating hours and general transit information, wide-area travel information and a list of MARTA and Olympic park and ride lots. When information is requested from the Yellow Pages function, the guest receives the name, address, phone number and other pertinent information for each entry. The tiles Area Attractions and Restaurants present multi-media presentations that include color pictures, audio, location maps and driving and transit instructions to selected restaurants and points of interest in the Atlanta area. Guests requesting route guidance can have the information printed and can pick it up at the bell captain’s stand in the main lobby. A printed map and instructions can be requested under area attractions, restaurants and yellow pages services. The printout will be ready for pickup at the bell captain’s stand.



Fact Sheet #6

On-line Services

Starting June 1 with the Showcase, a world wide web site has provided Atlanta real-time traffic and public transportation information, route planning service and electronic yellow pages to Internet users.

1. Who provides the Showcase web site?

- **Maxwell Labs** has developed an Internet World Wide Web site.
- **Navigation Technologies** provides the map data base for driving route planning support and yellow pages information services.
- **MARTA** provides the transit itinerary planning service.

2. What information does the Showcase web site provide?

- Travel speed/congestion, real-time incident, maintenance, road closure information.
- MARTA and Cobb Community Transit bus and train service information.
- Wide area travel (Amtrak, airlines, Greyhound) information.
- Planned public events such as Olympic competition.
 - Atlanta-specific electronic yellow pages.
 - Auto and transit route planning support.
- Status of Olympic park and ride lots.

3 How does the Showcase web site work?

Maxwell Labs' web server receives traffic data from the Showcase fixed end server, both of which are located in the Georgia DOT's Transportation Management Center in Atlanta. The Showcase fixed end server receives a continual flow of real-time traffic and transit information from Georgia DOT's Advanced Transportation Management System computers. Users request information through the Internet to the web server to the Showcase fixed end server. For instance, to receive route guidance, users type in their origin and destination and then select their mode of travel (drive, transit, intermodal). The routing directions are returned to the user in textual format. Maps containing speed and incident information are generated by the web server based on current traffic data received from the fixed end server.

4. How is the information displayed?

When users select real-time traffic information under the “transportation” tile, a map of Atlanta with traffic speeds represented by color coded segments and dots appears. Icons on the map pinpoint the locations of traffic incidents, maintenance and planned events. A textual description is provided if the viewer clicks on either a speed segment or an incident icon.

5. What other types of information are available?

Other information that is available on the web site includes *The Traveler* newsletter, press releases and other promotional materials; descriptions of the Showcase program, technologies and the participating government agencies and companies; hyper-text links with the participants’ company home pages and links with special events web sites as well as other transportation web sites.

The address of the Showcase web site is <http://www.georgia-traveler.com>.

Fact Sheet #7

Interactive Kiosks

The Georgia Department of Transportation has placed nearly 200 interactive travel information kiosks in public places throughout the state. Tourists, commuters and other travelers can request information by touching the kiosk's screen

1. Who has developed the interactive kiosk system?

- The **Georgia DOT** provides project supervision.
- **JHK & Associates** has integrated the system.
- **Navigation Technologies** provides the map data base.
- **GeorgiaNet Authority** will maintain the entire system once it has been implemented.

2. How does the kiosk work?

When travelers request traffic and travel information, Advanced Transportation Management System servers respond to the query. The Showcase fixed end server responds to non-traffic information queries (Olympic Games Park and Ride lot status) only. The fixed end server responds with data tables, which the kiosks process for specific usage.

3. What information is available on the kiosks?

- Real-time traffic speed and incidents by location
- Turn-by-turn automobile route planning support
- MARTA bus and train schedules plus transit route planning
- Tourism information, including attractions, lodging information and a hotel reservation system
- Current weather forecasts
- Airline information
- Rideshare, vanpool and park and ride options
- Special event information
- Olympic route and parking information

4. Who provides information for the kiosks?

- The Georgia DOT Advanced Transportation Management System
- MARTA
- The Weather Channel

- Airlines
- The Georgia Department of Industry, Trade and Tourism
- The Atlanta Regional Commission

5. Where have the kiosks been placed?

The kiosks are installed in transit stations, hotels, visitor centers, hospitals, airports, public and private office buildings, rest areas and shopping centers in and around Atlanta.

6. Other information:

- Real time traffic conditions are displayed on a map of the Atlanta region with color-coded segments indicating traffic speeds.
- Each kiosk has a free-standing printer.
- The kiosk system is maintained on a permanent basis by GeorgiaNet, a state agency that markets electronic access to public information.

Fact Sheet #8

User Acceptance

In a four-month test to help determine whether the public would embrace and use travel information services, the five Atlanta Showcase technologies fascinated visitors and residents alike, based on more than 700 user assessment surveys and more than 175 calls to the Showcase hotline. A majority of volunteers, cable television subscribers, hotel guests and Internet users who experienced the Showcase first-hand were enthusiastic about the potential of the technologies to improve their commutes and travel in and around Atlanta.

- Short assessment questionnaires were distributed throughout the Atlanta area to users of four of these technologies, and visitors to the Internet home page responded to an electronic questionnaire on-line.
- Respondents reported on how often they accessed traveler information, what affect that information had on their travel behavior and what aspects of each technology they found particularly beneficial.
- Respondents also provided constructive comments and suggestions on each of the technologies that were helpful in making real-time improvements to the Showcase.

While this sample of respondents should not be considered representative of all users of these technologies (samples were small and non-random), the feedback offers valuable insights into user travel behavior and perceptions. Respondents were:

- Highly educated (more than 90 percent had some college education or more);
- More than 70 percent male;
- Averaged 42 years old;
- About 80 percent said they were comfortable using high technology products.

The five Showcase technologies (cable television, hand-held computers, in-vehicle navigation/information systems, interactive television in hotel guest rooms and an Internet home page) provided users with maps that showed where accidents and other road incidents were slowing or halting the flow of traffic, and several of the systems provided users with detailed directions on how to get to their selected destination. Some of the responses to the Showcase devices and services include:

Cable Television

During the Showcase, cable systems in the City of Atlanta, DeKalb, Gwinnett and Cobb counties carried the real-time Georgia Traveler Information Television programming. The Atlanta system made the information available to its 250,000 subscribers 24-hours-a-day, and

the other systems carried Showcase programming during morning and evening rush hours to their combined 350,000 subscribers.

- Respondents to the questionnaire reported they viewed traffic conditions an average of once a day.
- A clear majority of respondents found a wide range of traveler benefits associated with the cable service, including getting the information they needed, liking the presentation formats and finding the information presented to be accurate.
- More than half of the respondents suggested the need to more clearly describe the location of the traffic cameras and the direction of traffic flow. This information was passed on to local transportation authorities.

In-vehicle Navigation Systems

Volunteers, visitors, journalists and local fleet drivers found turn-by-turn directions to their destinations, real-time traffic information, display maps and electronic yellow page information to be helpful, especially during the period when Atlanta was hosting the Olympic Games. More than 100 of the on-board computing units were installed in vehicles provided by Oldsmobile and BMW, Hertz rental cars and local government agency and business fleet vehicles.

- About 70 percent of the survey respondents were Atlanta area residents.
- About 65 percent of all survey respondents said they actually altered the routing, timing, destination or mode of their travel as a result of the devices.
- More than 75 percent of the respondents said the device was easy to use.
- About 65 percent said they would consider purchasing such a device for their own vehicle.
- About 75 percent said the traveler information derived from this technology was helpful.

On-line Services

As one of the trip planning components of the project, the Showcase Internet site was visited on an average of 2,000 to 3,000 times a week during the four-month demonstration. During the two weeks of the Olympics, the web page averaged 10,000 "hits" a week.

- About 75 percent of survey respondents said they found real-time traffic information to be particularly useful.
- About 95 percent of the respondents visited the transportation area on the home page, compared with about 50 percent visiting most of the other available topic areas, including services, special events and points of interest.
- More than 45 percent of respondents said they had visited the site more than once.
- About 75 percent of the respondents visited the site from within Atlanta, and about 6 percent were connecting from another country.
- About half said they were assessing the site to find out about travel in connection with the Olympics or Paralympics.

Hand-held Computers

About 250 of the hand-held devices were made available to visitors, local companies and government agencies during the Showcase.

- Approximately 65 percent of the respondents said they found the hand-held computers to be an excellent way to present traveler information.
- About 65 percent of the respondents experienced some difficulty with the wireless communications or other aspects of these devices.
- About 35 percent of the respondents said they would consider purchasing such a device for their personal use.

Interactive Television

Televisions in 285 rooms in the Crowne Plaza Hotel, Ravinia, had access to the Interactive Channel, which provided a host of services including real-time traffic and transit information to hotel guests.

- During the two weeks of the Olympics, 48 percent of all usage of the Interactive Channel by guests was for traffic speed, highway incident and public transit information.
- For the entire four month period of the Showcase, it is estimated that approximately 25 percent of all guests at the hotel accessed the Interactive TV at least once.
- Survey results indicate an average use of 2.3 times per user with the most popular aspects of the system including-information on the weather, area attractions, current traffic conditions and route planning, with between two-thirds and one-half of users accessing these topic areas.